REMARKS

The Office examined claims 1-18 and rejected claims 1-3, 5, 7, 10-12, 14 and 16. With this paper, claims 1-18 remain in the application.

Rejections under 35 USC §102

At page 2 of the Office action, claims 1-3, 5, 7, 10-12, 14 and 16 are rejected under 35 USC §102(a) as being anticipated by Udaya Bhaskar *et al.* (US 6,418,408).

Regarding the rejection of claims 1 and 10, the only two independent claims

As mentioned in the response to the previous Office action, at page 10, line 13 of the application it is explained that according to the invention, "an analyzer determines the spectral parameter concealment in case of a bad frame based on the history of previously received speech parameters." Claim 1 (amended in response to the previous office action) includes as a limitation, "providing a substitution for the spectral parameters of the bad frame based solely on spectral parameters for recently previously received good frames and including an at least partly adaptive mean of the spectral parameters of a predetermined number of the most recently previously received good frames." The only other rejected independent claim of the application, namely claim 10, includes the same limitation.

Instead of teaching using solely spectral parameters for recently previously received good frames, i.e. using what might be described as using a form of extrapolation, Udaya Bhaskar appears to teach using *interpolation* to determine spectral parameters for a missing frame, i.e. Udaya Bhaskar teaches using not only speech parameters for frames received previous to a bad frame, but also speech parameters received for a frame received subsequent to the bad frame (i.e. Udaya Bhaskar teaches using

"previous" and "future" frames). The Office action asserts that Udaya Bhaskar teaches "providing replacement for the LSP parameters of [a] bad frame by an average of spectral parameter values of two past frame parameters," citing col. 46, ll. 1-10 (which is claim 10 of Udaya Bhaskar), i.e.,

> 10. A system as recited in claim 9, wherein said decoder generates an error concealment mechanism for the line spectral frequency (LSF) parameters based on replacing the errored parameters by ones generated using a higher value for the fixed prediction coefficient in the predictive inverse-VQ; and provides an error recovery mechanism whereby the LSF parameters of the previous frame are also replaced by an average of the parameters *of the current frame* and parameters from two frames ago, so that the LSF parameters evolve smoothly. [Emphasis added.]

The "current frame" is not the bad frame, but is a later-received good frame--and more specifically the first good frame after one or more consecutive bad frames, as explained at col. 39, ll. 38-40, which reads:

> The error concealment procedure consists of "bad frame masking" that takes place when we receive a bad frame and "bad frame recovery" that takes place in the first good frame after one or more consecutive bad frames.

Thus, Udaya Bhaskar again teaches an interpolation procedure, not the procedure recited in claims 1 and 10, including using solely spectral parameters for recently previously received good frames.

(The Office action also cites col. 5, ll. 33-37, which states that "in the case of a frame error, the LSF's are constructed using the previous error-free LSF vector." Clearly, based on the language at col. 38, ll. 38-40 (i.e. claim 10), the language at col. 5, ll. 33-37 is to be understood as not restricting error-recovery to *only* using the previous error-free LSF vector, but to using the previous error-free LSF vector and also that of the current (good) frame.)

Further regarding the rejection of claims 2, 3 and 5

The Office action rejects claims 2, 3 and 5 using Bhaskar as applied to claim 1, citing col. 42, ll. 35-41:

> … a voicing measure, which is quantized and transmitted to the decoder. The voicing measure is estimated for each frame based on certain characteristics of the frame, [*sic*] It is a heuristic measure that assigns a degree of periodicity to each frame. The voicing measure for the current frame, denoted by v(M), occupies the range of values $0 \leq v(M) \leq 1$, with 0 indicating a perfectly voiced or periodic frame and 1 indicating a completely unvoiced or aperiodic frame.

Applicant notes that the quoted text appears not at col. 42, ll. 35-41, but at col. 23, ll. 32-42. However, applicant notes that at col. 42, ll. 35-41, Bhaskar further explains:

> The voicing measure lies in the range [0,1] and is encoded using a 3 bit index. Small values of the voicing measure or low values of the voicing measure index correspond to high degree of voicing and vice-versa.
>
> The bad frame masking procedure works in two stages. In the first stage we exploit the correlation between the VAD likelihood and the voicing measure index. In the second stage the correlation between the reconstructed spectrally weighted SEW RMS value in the [80-1250] Hz band and the voicing measure is exploited.

Claim 2 recites a further step of determining whether the bad frame conveys stationary or non-stationary speech, and then providing a substitution for the bad frame in a way that depends on whether the bad frame conveys stationary or non-stationary speech. Applicant respectfully submits that the above-noted text (at cols. 23 and 42) in Bhaskar does not teach such a limitation. Where the invention according to claim 2 recites first determining whether the bad frame conveys stationary or non-stationary speech, and then providing a substitution accordingly, Bhaskar teaches assigning to a frame by trial and error a value v(M) that varies continuously from voiced to unvoiced, and

passing that value, with the frame on to a decoder. Note that Bhaskar says that the value v(M) is a "heuristic measure," i.e. it is assigned by some kind of guessing/ trial and error. There is no determination of a frame representing either voiced or unvoiced speech, as required by claim 2.

Claim 3, which depends from claim 2, further recited that in case of a bad frame conveying stationary speech, the step of providing a substitution for the bad frame is performed using a mean of parameters of a predetermined number of the most recently received good frames. Applicant respectfully submits that the the above-noted text (at cols. 23 and 42) teaches no such limitation.

Claim 5, which also depends from claim 2, includes as a limitation that in case of a bad frame conveying non-stationary speech, the step of providing a substitution for the bad frame is performed using at most a predetermined portion of a mean of parameters of a predetermined number of the most recently received good frames. Applicant respectfully submits that the above-noted text (at cols. 23 and 42) provides no such limitation.

Accordingly, for the reasons given in respect to claims 1 and 10, applicant respectfully requests that the rejections of claims 1 and 10 under 35 USC §102 be reconsidered and withdrawn. For the reasons given for claims 2, 3 and 5, and also for the reasons given for claims 1 and 10, applicant respectfully requests that the rejections of claims 2, 3 and 5 under 35 USC §102 be reconsidered and withdrawn. Since all the other claims depend from either claim 1, 2, 3, 5 or 10 (directly or indirectly), applicant requests that the rejections of the other claims also be reconsidered and withdrawn.

Conclusion

For all the foregoing reasons it is believed that all of the claims of the application are in condition for allowance and their passage to issue is earnestly solicited.

Respectfully submitted,

Oct. 1, 2004
Date

James A. Retter
Registration No. 41,266

WARE, FRESSOLA, VAN DER SLUYS
& ADOLPHSON LLP
755 Main Street, P.O. Box 224
Monroe, CT 06468-0224

tel: (203) 261-1234
Cust. No.: 004955